

Office of Research and Library Services Monthly Report

February 2007

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ORLS PROGRAM NEWS

Synthesis on Inflation Estimating Practices Completed

A synthesis of inflation estimating practices for cost estimating capital projects was requested by Aaron Butters, Systems Analysis and Program Development Manager. WSDOT currently uses a private service to supply this information. The service provides inflation estimates for 10 years and the last year's inflation rate is used to project to 50 years. Practices, products or services that are currently used in industries that apply a similar time scale or similar type of work were reviewed. An email survey of transportation agencies was conducted and included with the report. To obtain a copy of the synthesis, contact [Kathy Lindquist](#) or 360-705-7976.

Sharing Transportation Information

During the 2006 TRB annual meeting an informal group of transportation librarians discussed forming a consortium of transportation libraries that would practice (free) reciprocal resource sharing. The result is Libraries Sharing Transportation Resources (LSTR), and WSDOT Library has joined this with transportation libraries around the country.

Particularly exciting in this development is that the University of California Berkeley, Institute of Transportation Studies Library has agreed to participate in LSTR. With their extensive holdings, the opportunities to provide needed materials to our customers are greatly expanded. WSDOT Library's status as a net lender will probably not change as a result of having joined this consortium, because of our high percentage of unique materials.

WSDOT Attends First TransNow Advisory Committee Meeting

Five WSDOT employees attended the Transportation Northwest (TransNow) Advisory Committee meeting. Doug MacDonald spoke about the loss of understanding regarding the role of transportation and the need to improve the discussion of transportation in the larger societal context. He also challenged the researchers to be a part of the transformation of the transportation system. The presentation was very well received by the other committee members and visiting professors. The agenda provided information on the status of TransNow, the STAR Lab, Freight Research, and a plan for co-locating UW TransNow and TRAC staff in the new Safeco Building being leased by UW. Other WSDOT attendees included Barbara Ivanov, Dave McCormick, Jim Stuart, Jim Wright, and Leni Oman.

E-mail Is For Old People

Reference Librarian Michel Wendt attended the Online Northwest Conference in Corvallis, Oregon in mid-February, where he learned that ninety percent of 15-25 year-olds use instant messaging regularly; while only five percent those over 30 do, raising the question: What is WSDOT doing to develop and provide the tools routinely used by the next generation of engineers?

Even more challenging, though, is the way in which “transit” itself takes on a new meaning as the virtual world expands. When a virtual branch library in the Toronto Public Library system accounts for 20% of all TPL traffic, what does that imply about trends in trip generation that highway planners need to consider?

Michel’s full report is available at the [library’s web page](#).

NCHRP 2008 Problem Statements Scores Submitted

The National Cooperative Highway Research Program (NCHRP) annually solicits problem statement ratings from each state for their national program of research. Problem statements covering the areas of Administration, Finance, Workforce, Construction, Asset Management, Performance Management, Information Management and Planning were rated by WSDOT staff. The Office of Research and Library Services collated and submitted final scores for the # NCHRP Problem Statements on February 15th, 2007. Research projects selected for funding will be announced by NCHRP in April 2007.

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LIBRARY ACTIVITIES

Western Transportation Libraries Network

WSDOT Librarian Stephen Cochran moderated an initial meeting of DOT and other transportation libraries throughout AASHTO Region 4 on the last day of February. 20 participants from 11 states began in earnest to pool their time and resources with the objective of streamlining and broadening the information and services they provide to their customers.

A second meeting has already been scheduled for early April, and organizational documents are being reviewed in a shared online space.

Library Usage

Circulation – Checked out 88 items to WSDOT employees

Interlibrary Borrowing – Obtained 16 items on behalf of WSDOT employees. Unable to borrow one additional item.

Interlibrary Loans – Lent 29 items to other libraries; unable to fill 7 requests for PE Exam materials currently checked out to others.

Collection – *Added 113 new items to WSDOT Library collection*

Library Cards – Issued 7 new library cards to WSDOT employees, renewed 3

Web Page (1/27 – 1/26)

- Intranet Total Home Page Views: 727
- Intranet Total Page Views: 1,642
- Average Daily Intranet Page Views: 59
- Popular Intranet Pages: Standards and Manuals; 2007 Staff Legislative Notebook; and Journals, Newspapers, Books, and Reports
- Internet Total Home Page Views: 1,119
- Internet Total Page Views: 2,126

Technical Input Provided

- Provided information on the Spokane Street Swing Bridge in Seattle – entrepreneur in western Washington
- Located information about photographs of the history of Snoqualmie Pass – author/editor in the Northwest Region
- Compiled engineering information for floating bridges – Transportation researcher from Japan
- Provided information about the construction and failure of the original Narrows Bridge – High school student from Italy
- Provided general information on bridge engineering – French engineering student
- Sent an electronic version of WA-RD 370.1, Bicycle Facilities and Use– Australian Transportation agency
- Found a copy of a TNB traffic/revenue study – Puget Sound Regional Council

Questions from WSDOT Staff

- Found a recently published FHWA report for Urban Corridors– Project Development Office
- Located information about the topics of recent speeches given by former US Secretary of Transportation Norm Mineta – Public Transportation & Rail
- Located an ANSI standard for the Washington State Ferries – Terminal Engineering
- Located information on the number of single point urban interchanges in the state – Communications
- Conducted a literature search on the effects of bridge shading on plant life – Environmental Services
- Provided copy of an article from Access to Destinations on a rush request – Strategic Assessment Office

- Provided PE Exam materials to 6 WSDOT employees – 3 Olympic, 2 Northwest, 1 Urban Corridors
- Conducted a literature search on correlating reduced congestion and increased safety at intersections – Safety
- Located information on the cost of the original Snohomish bypass – Northwest Region Communications
- Found information on how long tires with retractable studs have been available – Office of Research and Library Services
- Provided assistance on title changes of State Highway Log & State Route Log. – Materials Laboratory
- Conducted a literature search on monitoring and evaluating constructed wetlands and runoff – Environmental Services
- Request for NFPA and IESNA standards on tunnel lighting and design – Bridges and Structures
- Provided an initial literature review on inflation estimating – Systems Analysis and Program Development
- Provided a quick literature search of recent Cable Median Barrier evaluation reports

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RESEARCH PROJECT NEWS

Two new research project agreements were started this month

- Contract documents were approved between WSDOT and the US Army for the Transportation Pooled Fund Blast Test Project and mailed out for signature.
- A new task order, T4120 03, was issued to WSU for the Syntheses Development project. David McLean will be the Principal Investigator on the \$15,000 project which ends June 30, 2007.

Six project modifications were requested and approved

- A six month time extension was granted to GCA4665 – *Effect of Chloride-based Deicers Phase 1*. The extension was requested to allow for additional monitoring of samples and the impacts. The Principal Investigator is Xianming Shi at Western Transportation Institute, Montana State University.
- Task Order T2695 18, *Landscaped Median Evaluation* was granted a four month time extension. This will allow for further incorporation of comments into the final report. The Principal Investigator for the project is Mark Hallenbeck, UW.
- Task Order T2695 66, *Liquefaction Phase III* was granted a two month time extension to allow the principal investigator to address a request from the technical monitor for more details in the final report. Steve Kramer, UW, is the Principal Investigator.
- A two month time extension was approved for T2695 68 – *Camber Prediction in Precast Concrete Bridge Girders*. The extra time will allow for the inclusion of additional data into the final report. The PI is John Stanton, UW.

- Task Order T4118 10 – Northwest Region *Traffic Management Center Development* was granted a four month time extension to allow for the inclusion of additional information into the project. Pete Briglia is the PI, UW.
- A four month time extension was granted to Task Order T4120 01 – *Identification of Traffic Data Gaps* to allow for the gathering of additional data and incorporation of comments by the technical monitor. Co-PI's are Eric Jessup and Ken Casavant at ODOT.
- At the request of the Minnesota DOT a two month time extension and \$2,000 cost increase was provided to Texas Transportation Institute to allow for additional testing under Task Order T4541 AF.

Pooled Fund Project News

Notification has been received that FHWA is finally closing a number of projects dating back as far as 1990. We will be receiving refunds from the projects which did not expend our total contribution. At this point the four projects closed will provide a refund of less than \$1,300.

Five New Research Report Published

WA-RD 517.2 [An Assessment of WSDOT's Hot-Mix Asphalt Quality Control and Assurance Requirements](#), University of Washington, February 2007, Kim A. Willoughby and Joe P. Mahoney.

WA-RD 647.1 [Improving Dual-Loop Truck \(and Speed\) Data: Quick Detection of Malfunctioning Loops and Calculation of Required Adjustments](#), University of Washington, February 2007, Nancy L. Nihan, Yinhai Wang, and Patikhom Cheeverunothai.

WA-RD 656.1 [Improving Truck And Speed Data Using Paired Video & Single-Loop Sensors](#), University of Washington, February 2007, Yinhai Wang, Nancy Nihan, Ryan Avery, and Guohui Zhang.

WA-RD 664.1 [Reliability – Based Design of Seismic Retrofit for Bridges](#), University of Alabama, February 2007, Kenneth J. Fridley and Zhiyuan Ma

WA-RD 665.1 [Homeless Student Transportation Project Evaluation](#), University of Washington, February 2007, Daniel Carlson, Sheri Reder, Nathalie Jones, and Andrea Lee.

Five Research Reports Requested

The following research reports were requested from ORLS. Other reports are downloaded from the website or requested through the WSDOT Library or through other libraries that have added our reports to their collection.

Requested by private consultants and vendors

WA-RD 001.1 [Aerotriangulation Analysis & Control Point Error Detection Washington State Highways](#), Washington Department of Highways, March 1972, Cheng-yeh Hou.

WA-RD 126.1 [Changes in Intermodal Transportation in Washington and Impacts on Road Infrastructure](#), Washington State University, August 1987, Ken L. Casavant, Jonathan Newkirk, and Jerry C. Lenzi.

WA-RD 189.1 [Psychological Aspects of Mode Choice](#), University of Washington, December 1989, Cy Ulberg.

WA-RD 388.2 [Investigation of Culvert Hydraulics Related to Juvenile Fish Passage](#) Washington State University, January 1996, Michael E. Barber, and Randell Craig Downs.

WA-RD 417.1 [Noncontact Lap Splices in Bridge Column-Shaft Connections](#) Washington State University, July 1997, David I. McLean and Carol L. Smith.

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INFORMATION AND FINANCE RAC

Principal Investigator Selected

Two Requests for Qualifications (RFQ's) were received for the Data Integration and Document Management Using Ontologies research project. This project was approved for funding by the Research Executive Committee at the amount of \$15,000. Ron Cihon, the technical monitor for this project reviewed and scored the two RFQ's and Daniel Dailey of the University of Washington was selected as the Principal Investigator (PI). The PI will now submit a proposal to include further defining the problem, the type of product to be developed and how it is expected to be used at WSDOT.

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OPERATIONS RAC

Pacific Northwest Snowfighters (TPF-5(035))

One of the approved projects for the 07-09 biennium is *Determining the Longevity and Cost-Effectiveness of Corrosion Inhibitors added to Liquid and Solid Deicing Chemicals* for \$100,000. This project will be solicited under the Pacific Northwest Snowfighters (PNS) pooled fund study and will bring in additional funds from other state DOTs and possibly product vendors and/or matching funds. A detailed scope of work is being put together and will be placed on the website within the next month.

Principal Investigators Selected

One Request for Qualifications (RFQ) was received for the Loss of Service Life Due to Bridge Deck Shrinkage Cracking research project. This project was approved for funding by the Research Executive Committee at the amount of \$100,000. Mo Sheikhezadeh, the technical monitor for this project, Don Brouillard, Bijan Khaleghi, and Kim Willoughby reviewed the RFQ and selected Drs. Qiao and McLean from Washington State University as the Principal Investigators (PI's). The next step is reviewing a scope of work from the PI's.

Yinhai Wang from the University of Washington has been selected as Principal Investigator for the project entitled "Quantifying Incident Induced Delays". This research project was approved for \$75,000 by the Research Executive Committee. Bill Legg will be working closely with Yinhai to develop the full project proposal.

The Texas Transportation Institute will be conducting testing and analysis of two projects slated for 07-09 research funding. These projects include WSDOT's funding contribution to the ongoing work of the Roadside Safety Pooled Fund Research Committee and a

crash test of a concrete barrier with large scuppers, a project selected by the Project Delivery Research Advisory Committee.

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MULTIMODAL TRANSPORTATION RAC

Managing Pedestrian Safety I: Injury Severity Draft in Review

The Final Draft of the research project, Managing Pedestrian Safety I: Injury Severity, by Anne Vernez Moudon and doctoral students at the University of Washington was completed and in review by WSDOT staff and selected peer researchers. The research study concentrated on the severity of injuries and fatalities related to pedestrian travel on State Routes in King County, Washington. A thorough review of the literature on pedestrian safety and injury severity preceded the analytical work. The Final Report will be completed on March 31, 2007.

Principal Investigators Selected

The Principal Investigators for the *Freight Resiliency Project*, approved for funding by the Research Executive Committee at the amount of \$120,000) are selected. The team of freight researchers from Washington State University and the University of Washington are Ken Casavant, Eric Jessup, Anne Goodchild and Ed McCormack. They will be working closely with Barbara Ivanov to prepare the proposal.

No RFQ's were received for the *Measuring Employer-based TDM Strategies* research project. RFQ's will be requested from entities other than the University of Washington and Washington State University.

Washington State Ferries Passenger Demand and Loss Revenue Analysis

University of Washington Professor G.Scott Rutherford is selected as the Principal Investigator for a study that will look at the travel patterns of ferry riders in relationship to the new toll bridge at the Tacoma Narrows Bridge. Melissa Johnson, WSF Terminal Operations is the Technical Monitor.

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PROJECT DELIVERY RAC

Bituminous Surface Treatment Protocol

The first of two reports has been received and is currently in the review process. The first report summarizes the feasibility of using BSTs to maintain pavements with higher traffic levels than currently used. The second report will focus on the BST specifications and the necessary modifications. For the second report, a meeting was held in Wenatchee on February 26th to discuss the specifications with contractors and DOT personnel.

Constructability Software Traffic Modeling Workshop (SPR-3(098))

The FHWA is sponsoring a traffic modeling and construction simulation workshop to discuss/exchange ideas to improve the knowledge on the state of the art and to better inform States and the FHWA on a series of tools and options to manage congestion

impacts related to construction projects. This workshop will be held in Sacramento, CA on March 20th and 21st. Phil Fordyce, Brian Walsh, Janice Hamil, and Shuming Yan from WSDOT will be attending.

Principal Investigators Selected

One Request for Qualifications (RFQ) was received for the Seismic Assessment and Retrofit of WSDOT Bridges research project. This project was approved for funding by the Research Executive Committee at the amount of \$150,000. Bijan Khaleghi, the technical monitor for this project, DeWayne Wilson, Jugesh Kapur, and Kim Willoughby reviewed the RFQ and selected Drs. Cofer and ElGawady from Washington State University as the Principal Investigators (PI's). The next step is reviewing a scope of work from the PI's.

One RFQ was received for the Load Resistance and Factor Design (LRFD) Procedures for Geotechnical Design research project. This project was approved for funding by the Research Executive Committee at the amount of \$100,000. Tony Allen, the technical monitor for this project, and Kim Willoughby reviewed the RFQ and selected Drs. Kramer and Baker as the Principal Investigators (PI's). Dr. Kramer is from the University of Washington and Dr. Baker is from Stanford University. This project will be run through the Pacific Earthquake Engineering Research (PEER) Center at The University of California at Berkeley. It will also attract matching funds from Caltrans. The next step is reviewing a scope of work from the PI's.

One RFQ was received for the *Concrete Performance Using Low Degradation Rock research project*. This project was approved for funding by the Research Executive Committee at the amount of \$80,000. Don Brouillard, the technical monitor for this project, Jim Walter, Tom Baker, Linda Pierce, and Kim Willoughby reviewed the RFQ and selected Drs. Qiao and McLean from Washington State University as the Principal Investigators (PI's). The next step is reviewing a scope of work from the PI's.

No RFQ's were received for the *New Quality Verification Method for Acceptance of Drilled Shafts* research project. RFQ's will be requested from entities other than the University of Washington and Washington State University.

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